

Claims

It is claimed:

1. Web coating apparatus having a vacuum chamber (1) which has between a back wall (18) and at least one removable closing plate (22) a shield (20) with a flat cover (10), at least one guide roll (12, 13, 14, 15) and a coating cylinder (9) with an axis (A) as well as at least one coating source (39a, 39b, 39c) being disposed in the vacuum chamber (1), characterized in that the ends of the at least one guide roll (12, 13, 14, 15) and of the coating cylinder (9) which face the closing plate (22) are fastened to the cover (10) with bearings, and that the space in the vacuum chamber (1) underneath the coating cylinder (9) is kept free of supporting elements.
2. Web coating apparatus according to claim 1, characterized in that the at least one guide roll (12, 13, 14, 15) and the coating cylinder (9) are journaled on the back wall (18) by their ends remote from the closing plate (22).
3. Web coating apparatus according to claim 1, characterized in that the at least one guide roll (12, 13, 14, 15) and the coating cylinder (9) are journaled at their ends remote from the closing plate (22) on supporting elements in front of the back wall (18) and are held on the cover (10).
4. Web coating apparatus according to claim 1, characterized in that the space underneath and laterally of the coating cylinder (9) is divided by dividing walls (6) into at least two sub-chambers (3, 4, 5) and that the dividing walls (6) have at their ends facing the coating cylinder (9) sealing means (7) whose curvature is adapted to the radius of the coating cylinder (9) such that between the sealing elements (7) and the coating cylinder (9) arcuate sealing means (7) whose curvature is adapted to the radius of the coating cylinder (9) such that between the sealing elements (7) and the coating cylinder (9) arcuate sealing gaps are formed.

5. Web coating apparatus according to claim 4, characterized in that the sealing means (7) are connected via actuating mechanisms (8) to the corresponding dividing wall (6) such that the sealing gaps can be adjusted radially to minimum values.

6. Web coating apparatus according to claim 1, characterized in that, within the vacuum chamber (1) at least four sub-chambers (2, 3, 4, 5) are formed on the circumference of the coating cylinder (9) by dividing walls (6).

7. Web coating apparatus according to at least one of claims 1 to 6, characterized in that the two uppermost dividing walls (6) enclose an angle between 120 and 180 degrees downward with respect to the axis (A).

8. Web coating apparatus according to at least one of claims 1 to 7, characterized in that the partial circumference of the shield (20) lying underneath the two uppermost dividing walls (6) is of partially cylindrical configuration.

9. Web coating apparatus according to claim 8, characterized in that a total of four guide rolls (12, 13, 14, 15) are arranged in the sub-chamber (2) lying above the two uppermost dividing walls (6).

10. Web coating apparatus according to at least one of claims 1 to 9, characterized in that the dividing walls (6) have at their ends opposite from the back wall (18) radially running sealing bars (23) against which the closing plate (22) can be placed in contact.

11. Web coating apparatus according to claim 10, characterized in that the sealing bars (23) have elastomeric sealing strips (23) running parallel to their radial center lines, against which the closing plate (22) can be brought in contact upon the closing of the vacuum chamber (1).

12. Web coating apparatus according to claim 11, characterized in that the coating

cylinder (9) has an end facing the closing plate (22) in front of which a fixed ring sector (47) is disposed, which partially encompasses the bottom end of the element (19) supporting the coating cylinder (9).

13. Web coating apparatus according to at least of claims 1 to 12, characterized in that the coating cylinder (9) is surrounded at its ends within the sub-chambers (3, 4, 5) by strip-like masks (52) curved cylindrically coaxially, which extend around the said ends with tight clearance and shield the coating cylinder (9) against the coating of their surface portions not covered by the web (45).

14. Web coating apparatus according to claim 13, characterized in that the front mask (52) has an elastomeric sealing edge with which the closing plate (22) can be brought into engagement when the vacuum chamber (1) is closed.

15. Web coating apparatus according to claims 13 and 14, characterized in that the ring sector (47) extends along the circumference to its end edges (47a) within the front mask (52).

16. Web coating apparatus according to at least one of claims 1 to 15, characterized in that the total height of the apparatus from the floor is no more than 2.5 meters.

17. Web coating apparatus according to at least one of claims 1 to 16, characterized in that the vacuum chamber (1) has on each side of the coating cylinder (9) a side chamber (25, 26) in which a winding mandrel (27 and 28, respectively), one for an unwinding roll (44) and one for a winding roll (46) as well as corresponding guide rolls (29, 30 and 31, 32, respectively) for the web (45).

18. Web coating apparatus according to claim 11, characterized in that the side chambers (25, 26) are constituted as vacuum chambers and are joined to the sub-chamber (2) of

the vacuum chamber (1) through slits (33, 34) for the passage of the web (45).

19. Web coating apparatus according to at least one of claims 1 to 12, characterized in that all sub-chambers (2, 3, 4, 5) of the vacuum chamber (1) and the side chambers (25, 26) are connect each to its own vacuum pump (35).

20. Web coating apparatus according to at least one of claims 17 to 19, characterized in that the upper sides of the side chambers (25, 26) lie at least substantially at the same level as the cover (10) of the vacuum chamber (1).